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THE COURSE OF STUDY

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Pedagogics of Nature Study

Wilbur S. Jackman

Imaging

When an object or a physical phenomenon is presented to one or more of the senses, an effect is produced that in no conceivable manner can be said to resemble the cause. The phenomenon of vibration derived from a blow by a hammer striking some object may be traced along purely material channels, and its rate of movement is but a problem in mathematical physics. At a given point, however, its physical identity is lost, and in its stead there flashes out a mental phenomenon which remains. Assuming the integrity of the senses, each normal individual must bear witness to the constant correspondence between the physical presentation and the psychic result which is called an image. It is not properly an image, though, if there is associated with this word its ordinary meaning. An image is a likeness or a counterpart. The mental image is not a *likeness*, but a result which is remarkable in its *unlikeness* to the cause. In the process of living, during the conscious hours there is a continual effort; first, to interpret these psychic results; that is, to refer them to the proper material source; and second, to organize them—that is, to discover by what relations they are associated. These operations are to the end that one may obtain his bearings and preserve his proper place in the scheme of creation. The process of education is the systematized attempt to economize this effort. It accomplishes its purpose only as it keeps unobstructed the pathway between the physical and the psychic phenomena, and so far as it discovers methods of interpretation and organization that can be applied under the proper motive in dealing with psychic results or images.

Mental images, although bearing no resemblance to each other, may be considered as related when they can be referred to the same external source. The sound of the hammer striking a nail, the appearance of its falling through the air, the sinking of the nail into the wood, all give rise to images that it is impossible to compare with each other. Yet they are related, since they are referred to a common cause. When the psychic results of the sight giving color, and of the sight giving the effect of the blow upon the nail, and of the sound giving the substance are interpreted as belonging to the same thing, the hammer, they become organized at once as the related parts of the image of the hammer, which has a certain form, weight, and substance. Psychic results may be produced from outside occurrences which follow in immediate sequence in time, or which may take place simultaneously, yet this time relationship, alone, will not admit of their being organized into an image in the educative sense. As the hammer falls, a bird may fly across the field of vision; but the psychic result of the latter bears no educative relation to those derived from the hammer.

In nature study, the landscape, embodying the entire field of observation, presents itself to the beginner as a great composite of confused parts, and to most people, perhaps, it always remains so. It should be the aim of instruction to assist the pupil to refer the separate and more or less confused mental impressions to the appropriate source, and as this is done, to organize those referred to the same source into a clear and definite image. The landscape is revealed to the observer through its color, the initial interest being roused through the æsthetic sense. Everything, therefore, which involves color can be referred to a common external source, namely, light. All color impressions consequently become organized in the mind, since they are related to a common cause. Whether it is the foliage of a tree or the decorative colors of a room, the questions arising in both are solved by this relation to the one thing, light. Still further, in plants many of the myriad varieties in form are nothing but inextricable confusion until their relationship to light is recognized; then the seeming confusion of forms becomes an orderly array. Even two structures so extreme in their unlikeness to each other as a leaf and the human eye become related, from the fact that each represents a concession of the organism to the same controlling cause found in light. A large number of landscape phenomena, therefore, may be grouped together, from which there will be formed an image of related parts representing the effects of light. Another group of phenomena will be referred in the same way to heat, another to moisture, another to soil, and so on. The channeling of the grassblade and the bladdery vesicles on submerged plants as isolated facts are of little importance. But when the one is recognized as a dew-spout and the other as a swim-bladder, and that both are an attempt to make friends with water, they become the organized parts of an image that is fundamental in the study of botany. Imaging thus begun opens the way to endless study. Simple enough in the outset to be clear to the child, the last step in scientific research is but the latest attempt of the trained mind to define more clearly the same image. Nature study is not only the amassing of facts, it is also the organization of facts; science itself is nothing more. This kind of image growth is continuous. The demand for details for an ever incompleted image impels that research which always marks the true student of nature.

Function of Expression in Education

Francis W. Parker

Syllabus for Faculty Discussion

I. The best expression requires the best thought. The best thought causes the best growth of the nerve centers. Expression is controlled by motive; the higher the motive the greater the demand for expression and thought power.

1. The phrases, "the best expression," "the best thought," may seem vague and indeterminate, but certainly every teacher should demand of pupils and should direct all teaching skill to bring about nothing less than that. It is perfectly safe to say that all the movement in the development